

Notice of Allowability

Application No.

10/725,641

Examiner

Matthew E Warren

Applicant(s)

MITROS ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed on December 2, 2003.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ The drawings filed on 02 December 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2000

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gary Honeycutt on December 10, 2004.

The application has been amended as follows:

In claim 1, line 4, delete "operable" and insert in its place -- functioning -- .

In claim 1, line 8, delete " , intended to contain" and insert in its place -- containing -- . In that same line 8, delete "the" and insert in its place -- a -- .

In claim 9, line 8, delete "operable" and insert in its place -- functioning -- .

In claim 9, line 11, delete " , intended to contain" and insert in its place -- containing -- . In that same line 11, delete "the" and insert in its place -- a -- .

In claim 16, line 4, delete "operable" and insert in its place -- functioning -- .

In claim 16, line 8, delete " , intended to contain" and insert in its place -- containing -- . In that same line 8, delete "the" and insert in its place -- a -- .

In claim 17, line 1, delete "method" and insert in its place -- transistor -- .

In claim 18, line 1, delete "method" and insert in its place -- transistor -- .

In claim 19, line 1, delete "method" and insert in its place -- transistor -- .

In claim 20, line 1, delete "method" and insert in its place - - transistor - -.

Allowable Subject Matter

Claims 1-20 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art reference, alone or in combination, do not show a drain extended MOS transistor comprising; a first well of a first conductivity type as the extension of the transistor drain of the first conductivity type, and covered by a first insulator having a thickness; a second well of the opposite conductivity type to contain a transistor source of the first conductivity type, and covered by a second insulator thinner than the first insulator, the first and second wells forming a junction that terminates at the second insulator; wherein the first well has a region in the proximity of the junction termination, the region having a higher doping concentration than the remainder of the first well and extending not deep than the first insulator thickness. The closest reference, Hao et al. (US Pub. 2004/0173859 A1) shows a drain extended MOS transistor having a first well of a first conductive type (14) as the extension of the transistor drain and covered by a first insulator (10) having a first thickness; a second well (12) of the opposite conductivity type and covered by a second insulator (20), said first and second wells forming a junction that terminates at the insulator. The first well has a region (34 or 36) in the proximity of the junction termination. Although the region does not extend deeper than the first insulator thickness, the region is doped opposite the first conductivity type and

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does not specifically state if the concentration of the region is higher than the well region of the first conductivity type.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hao et al. (US Pub. 2004/0173859), Mosher (US 6,521,946 B2), Morton et al. (US 6,548,874 B1), and Chang et al. (US 5,627,394) each show drain extended MOS transistors having various doped regions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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December 10, 2004

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